

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for the production of aliphatic and aromatic carbonyl compounds having at least one aldehyde or ketone function, and these compounds may also simultaneously have at least one aldehyde and ketone function, wherein at least one starting material, which has at least one aliphatically and/or aromatically bonded functional group of formula I



in which R¹ stands for hydrogen, alkyl or aryl, X stands for hydrogen or a group that can be substituted during the catalytic reaction for the sulfinyl group of a sulfoxide, and n stands for integral values between 1 and 8, is oxidized, in the presence of at least one sulfoxide and/or at least one sulfide in the simultaneous presence of iron salts or redox pairs of iron-copper or silver-copper salts, by means of at least one oxidant having a redox potential of E_o ≥ + 2 V vs. NHE, the sulfoxide and/or the sulfide being used in a catalytic function.

2. (Previously Presented) The method according to claim 1, wherein for the production of aliphatic and aromatic mono- and polyaldehydes, at least one starting material is oxidized that has at least one aliphatically and/or aromatically bonded functional group of formula I, in which R¹ stands for hydrogen.

3. (Previously Presented) The method according to claim 1, wherein for the production of aliphatic and aromatic mono- and polyketones, at least one starting

material is oxidized that has at least one aliphatically and/or aromatically bonded functional group of formula I, in which R^1 stands for alkyl or aryl.

4. (Previously Presented) The method according to claim 1, wherein for the production of carbonyl compounds that have both aliphatically or aromatically bonded aldehyde and aliphatically or aromatically bonded ketone functions, at least one starting material is oxidized which has at least one aliphatically and/or aromatically bonded functional group of formula I, in which R^1 stands for hydrogen in the formation of aldehyde functions and stands for alkyl or aryl in the formation of ketone functions.

5. (Previously Presented) The method according to claim 1, wherein as sulfoxides, dialkyl, diaryl, or alkylaryl sulfoxides are used, and that as sulfides, dialkyl, diaryl, or alkylaryl sulfides are used.

6. (Previously Presented) The method according to one claim 1, wherein at least one sulfoxide and/or at least one sulfide is used in the reaction mixture.

7. (Previously Presented) The method according to claim 1, wherein at least one sulfoxide and/or at least one sulfide is dissolved in the reaction mixture.

8. (Previously Presented) The method according to claim 1, wherein at least one sulfoxide and/or at least one sulfide is immobilized on a solid body, and this body is made into a slurry in the reaction mixture.

9. (Previously Presented) The method according to claim 1, wherein at least one sulfoxide and/or at least one sulfide is used with a mole fraction of 1 to 90 mol%, referred to the aldehyde or ketone function formed.

10. (Previously Presented) The method according to claim 1, wherein at least one sulfoxide and/or at least one sulfide is used with a mole fraction of 1 to 500 mol%, referred to the aldehyde or ketone function formed.

11. (Previously Presented) The method according to claim 1, wherein the oxidant is used in the form of powder or in an aqueous solution.

12. (Previously Presented) The method according to claim 1, wherein persulfate salts or a mixture thereof is used as the oxidant.

13. (Previously Presented) The method according to claim 12, wherein alkali persulfate or ammonium persulfate is used as the persulfate salts.

14. (Previously Presented) The method according to claim 1, wherein water-soluble iron salts, preferably selected from the group comprising sulfates, nitrates and acetates, are used either alone or in a mixture with water-soluble copper salts.

15. (Previously Presented) The method according to claim 1, wherein water-soluble silver salts, preferably selected from the group comprising sulfates, nitrates and acetates, are used either alone or in a mixture with water-soluble copper salts.

16. (Previously Presented) The method according to claim 1, wherein water-soluble copper salts, preferably selected from the group comprising sulfates, nitrates and acetates, are used either alone or in a mixture with iron salts or silver salts.

17. (Previously Presented) The method according to claim 1, wherein iron salts or silver salts are used in the redox pairs in concentrations of from 0.005 to 10 mol%, referred to the starting material to be oxidized, and that the copper salt is used in a molar ratio of Fe:Cu or Ag:Cu of from 0.1 to 3.

18. (Previously Presented) The method according to claim 1, wherein the oxidation is performed in an inert reaction medium selected from the group comprising water, organic solvent, and a mixture thereof.

19. (Previously Presented) The method according to claim 18, wherein as the organic solvent, acetonitrile, methyl and ethyl alcohol, acetone, acetic acid, dimethyl formamide, or acetamide is used.

20. (Previously Presented) The method according to claim 1, wherein the oxidation is performed at a temperature of from 10 to 100°C.